

River, where a stage of about 25.5 feet was reached on November 1, and at Arthur City, Tex., on the Red River, where a stage of 28.6 feet was reached on October 7.

West Gulf of Mexico drainage.—The city of Roswell, N. Mex., was still inundated on October 1, from the rise in the Rio Hondo which began there on September 28. The water receded early in October, the crest of this flood being higher than the rise which occurred the week previous, but no stage data are available at this writing.

The Pecos River rose to above flood stage in the irrigation district south of Red Bluff Dam on September 25 and remained above until October 16, a period of 22 days, as recorded on the gage at Pecos, Tex. The crest was reached on September 30, but the river receded very slowly after that date. Very little precipitation occurred during this period after September 29, except for moderate rains on October 3. The heavy flow in the river was maintained by the steady spilling of water over Red Bluff Dam, caused by overtaxed reservoirs in southeastern New Mexico.

The reservoirs were still full when moderate to heavy rains fell in southeastern New Mexico on October 22, 23, and 24, and conditions similar to those mentioned above developed. This time the Pecos River reached flood stage at Pecos, Tex., and remained above that stage until after the end of the month.

During the time of the highest stage of the first flood, it was estimated that 12,000 acres of farm land were under water in Reeves, Ward, and Loving Counties. The principal losses occurred during the first flood; the second one was characterized mostly by continued inconvenience.

No flooding occurred in the Rio Grande except in the lower portion. There the river exceeded flood stage slightly at Mercedes and Brownsville, Tex., from October 20 to 29.

Gulf of California drainage.—The following report is submitted by Official in Charge, Phoenix, Ariz., relative to a flood in the upper Gila River above Coolidge Dam on September 29–30:

FLOOD IN UPPER GILA RIVER, SEPTEMBER 1941

At 3 p. m., September 28, Kelvin, Ariz., reported a rainfall of 1.49 inches and a river stage of 6.6 feet, and river apparently still rising, indicating that a considerable amount of rain had fallen on parts of the upper Gila River Basin. At 5 p. m., the observer at Safford, Ariz., reported a small cloudburst (about one inch in an hour during the midafternoon) and that the river was running at the rate of approximately 10,000 second-feet at that time. Later a rainfall of 1.04 inches was telegraphed from Benson, Ariz. None of these reports indicated exceedingly heavy rains over the Gila watershed but did show that there had been a rather unusual development over southern Arizona.

During the afternoon of September 27, a peculiar cloud development began to take place and was of such a nature as to indicate the possibility of an inland movement over southern Arizona of some tropical disturbance, possibly from the Gulf of Lower California. Air of a very unstable nature began to move in rather rapidly; the instability being determined by frequent light rain of a type that is not ordinarily observed in this area. In the front of this development, for instance, it was noted that a fine rain appeared to be falling out of a practically clear sky at one time.

It was not until the morning of September 29, however, that there was any indication of the real intensity of the storm over the upper Gila Basin, and particularly in western New Mexico. Rodeo reported 3.21 inches for the 24-hour period ending at 5:30 a. m. and Mogollon, N. Mex., reported 2.86 inches. While there are times when these two reports might not reasonably indicate a general rain, the fact that the development was observed over southern Arizona prior to the rains gave some justification for assuming the general nature of this storm on the Gila Basin.

It is still not known exactly at what time the peak of the disastrous flood reached Duncan, but it seems to have been about 5 p. m. The town of Duncan was evacuated by about 3 p. m., according to all reports, and from reports no loss of life occurred.

The peak of this flow on the Gila reached Safford early in the morning of September 30, with a flow of something near 40,000

second-feet. This caused deep water over a considerable acreage of farmland and a small inhabited area, but the inhabitants were moved prior to the rise.

The losses, principally crops and real property, were as follows: Greenlee County (Duncan area):

Loss of buildings and farm land..... \$200, 000
Loss of crops..... 84, 500

Total..... \$284, 500

Graham County (Safford area): Loss of farm land and crops..... \$200, 000

Total..... 200, 000

Damage to highways, railroads, mines mostly in Greenlee County; total..... 15, 500

Grand total of all losses..... 500, 000

TABLE 1.—Flood stages in Kansas and Neosho River Basins, April to October, inclusive, 1941

River and Station	Flood stage	Highest stage reached in month of—						Previous highest of record	
		April	June	July	August	September	October	Stage	Year
Solomon River: Beloit, Kans.....	18		35.9			28.9	26.3	34.5	1935
Saline River: Tescott, Kans.....	25		29.2			27.4	25.7		
Smoky Hill River:									
Ellsworth, Kans.....	20					21.35		27.2	1938
Lindsborg, Kans.....	21		24.5		21.1	28.3	32.4	32.5	1938
Salina, Kans.....	20		20.9			22.7	24.25	24.6	1903
Enterprise, Kans.....	26		27.4			26.85	30.1	29.1	1935
Republican River:									
Concordia, Kans.....	8		11.8	8.0		8.2		17.0	1935
Clay Center, Kans.....	15		20.9			15.3		27.75	1935
Little Blue River: Hanover, Kans.....	14		25.0			18.5	15.5		
Big Blue River:									
Beatrice, Nebr.....	16		22.15			26.3		26.0	1911
Barnston, Nebr.....	20		39.5			28.6		34.0	1908
Randolph, Kans.....	22		30.8			24.1	28.0	31.7	1903
Kansas River:									
Ogden, Kans.....	18		20.7				20.7	28.5	1903
Wamego, Kans.....	17		21.9				18.4	23.8	1935
Topeka, Kans.....	21		25.8				24.6	28.0	1908
Le Compton, Kans.....	16		21.0				21.6	29.5	1903
Cottonwood River: Emporia, Kans.....	20		24.55		21.2	25.4	25.0	27.0	1928
Neosho River:									
Neosho Rapids, Kans.....	22		25.8		24.7	23.7	28.1	28.0	1932
LeRoy, Kans.....	23		28.5		24.8	23.9	26.5	29.6	1926
Chanute, Kans.....	20		26.2			26.0	27.2	28.3	1928
Oswego, Kans.....	17	22.3	21.9		17.0	23.0	25.0	25.4	1927
Fort Gibson, Okla.....	22	33.5	27.25				35.5	35.0	1908

FLOOD-STAGE REPORT, OCTOBER 1941

[All dates in October unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
	<i>Feet</i>			<i>Feet</i>	
Wisconsin: Knowlton, Wis.....	12	8	8	12.8	8
		28	28	12.1	28
Rock: Moline, Ill.....	10	8	13	10.3	11
		23	29	10.6	25-26
Des Moines: Eddyville, Iowa.....	15	9	10	15.8	9
Illinois:					
Morris, Ill.....	13	7	8	13.7	8
Peru, Ill.....	17	7	11	18.5	18
		10	21	15.5	15
Havana, Ill.....	14	23	23	14.0	23
Beardstown, Ill.....	14	11	25	15.7	16
Mississippi:					
Quincy, Ill.....	14	11	11	14.0	11
		10	13	14.1	11
Hannibal, Mo.....	13	14	15	13.1	15
		25	28	12.2	26
		2	5	12.9	4
Louisiana, Mo.....	12	(1)	(1)	12.5	12
				12.3	22
				12.0	28
Grafton, Ill.....	18	6	8	18.3	7

See footnotes at end of table.

FLOOD-STAGE REPORT, OCTOBER 1941—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Arkansas Basin—Continued					
Neosho:	Feet			Feet	
Neosho Rapids, Kans.	22	14	16	26.3	15
		20	25	28.1	21
		15	18	24.7	17
LeRoy, Kans.	23	20	27	26.5	23
		16	29	16.3	18
Iola, Kans.	15	20	28	20.0	26
		4	5	21.6	5
Chanute, Kans.	20	17	19	20.9	19
		21	29	27.2	28
		4	7	25.9	6
Parsons, Kans.	22	17	18	22.6	17
		24	(?)	27.4	31
Oswego, Kans.	17	2	9	23.65	6
Pensacola, Okla.	24	17	(?)		3
				27.0	6
Fort Gibson, Okla.	22	5	11	27.5	7
		26	28	23.5	27
		30	(?)		
North Canadian:					
Woodward, Okla.	5	22	25	7.7	23
Canton, Okla.	9	23	28	12.6	25
Yukon, Okla.	8	(?)	(?)	10.6	7
				17.0	28
Oklahoma City, Okla.	12	29	30	14.7	30
East Oklahoma City, Okla.	14	28	(?)	17.2	30
Canadian:					
Canadian, Tex.	5	1	2	5.9	2
		22	22	6.0	22
		24	24	6.0	24
Union, Okla.	6	2	2	6.6	2
		23	25	8.0	24
Arkansas:					
Arkansas City, Kans.	15	24	27	16.35	26
		5	11	26.4	7-8
Webbers Falls, Okla.	23	16	19	26.2	17
		25	(?)		
		5	13	26.6	9
Fort Smith, Ark.	22	17	21	27.0	19
		25	(?)		
		5	12	26.0	9
Van Buren, Ark.	22	17	21	26.4	19
		25	(?)		
		8	11	22.9	10
Dardanelle, Ark.	22	18	21	23.4	20
		28	(?)		
Morrilton, Ark.	20	19	21	20.6	20
		29	(?)		
Red Basin					
Sulphur: Ringo Crossing, Tex. ⁴	20	5	5	21.0	5
		31	(?)		
Red:					
Arthur City, Tex.	27	6	7	28.6	7
Index, Ark.	25	9	9	25.0	9
WEST GULF OF MEXICO DRAINAGE					
Pecos: Pecos, Tex.	13	Sept. 25	16	* 14.9+	30
		25	(?)	14.1	28
Rio Grande:					
Mercedes, Tex.	21	20	29	22.1	24-25
				22.0	28
Brownsville, Tex.	18	22	26	18.7	24-25

* Actual crest slightly higher, but gage was inaccessible due to flood water.